

ONR Presents...

Achieving Future Naval Capabilities

Future
Naval
Capabilities

Enabling
Capabilities

S&T Program
Supporting Technologies

In 1999 the Department of the Navy adopted a new process for using science and technology to achieve Future Naval Capabilities (FNCs). Much of the Navy's and Marine Corps' nearer-term, applied science and technology program is

devoted to providing the means to achieve the FNCs. At the center of the new process are Integrated Product Teams (IPTs)—consensus-based bodies that bring together key members of the requirements, acquisition, and science and technology communities. FNCs are approved and prioritized by the Department of the Navy Science and Technology Corporate Board (a high-level body composed of the Vice Chief of Naval Operations, the Assistant Commandant of the Marine Corps, the Assistant Secretary of the Navy for Research, Development, and Acquisition, and the Chief of Naval Research). They consult the advice of Chief of Naval Operations' staff and the Marine Corps Combat Development Command, and use the assistance of the Naval Science and Technology Resource Sponsor. Each approved FNC is managed by its own IPT, which functions like a corporation's board of directors.

The first important task of that board of directors is to look at its FNC, determine what enabling capabilities are needed to achieve it, and then look for gaps in those enabling capabilities. A technical working group led by scientific and technical experts

advises the IPT on specifications for filling each gap. After reviewing existing programs, the technical working group proposes a science and technology investment plan to close the gaps. This is called a "Spike" investment—since research whose support doesn't reach a critical mass usually produces no results at all, a Spike focuses science and technology investments to provide that critical mass of support to programs that work toward achieving an FNC. Every Spike has a budget, milestones, an endpoint, and deliverables.

Approved Future Naval Capabilities

The Department of the Navy Science and Technology Corporate Board has approved twelve Future Naval Capabilities.

- **Information Distribution.** The Navy and Marine Corps will develop the capability to distribute information in a dynamically managed, interoperable network that features high capacity connectivity and enterprise-wide integrated information.
- **Time Critical Strike.** Battles are fought in four dimensions, not just three. Being able to hit the right target at the right time will give Naval forces the winning advantage in the new century.
- **Decision Support System.** Commanders get inside an adversary's decision cycle when they share common, consistent knowledge, can plan and rehearse in a distributed, collaborative way, and can make sound



Office of Naval Research
800 N. Quincy Street
Arlington, VA
22217-5660
<http://www.onr.navy.mil>

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decisions faster than their opponents can. A Decision Support System will take up the burden of routine information processing and so free human beings to use their judgment and insight.

- ***Organic Mine Countermeasures.***

Sailors and Marines need to be able to clear mines from their operating areas—at sea, on the shore, and inland—without breaking stride. Organic mine countermeasures—the ability to detect, characterize, and neutralize mines using a unit's own assets—are vital to the Navy and Marine Corps' doctrine *Forward...From the Sea* and *Operational Maneuver from the Sea*.

- ***Autonomous Operations.*** Advances in robotic systems will enhance the capability of all Naval forces. Technologies under development will increase the autonomy, performance, and affordability of unmanned air, sea, land, and underwater vehicles.

- ***Littoral Antisubmarine Warfare.*** Submarines—particularly small, quiet, conventional boats—pose a severe asymmetric threat to Naval forces operating near the shore. Work is underway to enable our forces to detect, classify, localize, track and engage these threats before they can get close enough to do us harm.

- ***Total Ownership Cost.*** The most advanced system is no good to you if you can't afford to buy and operate it. This effort is designed to reduce maintenance, reduce manning, advance design and manufacturing processes, ensure environmental compliance, and give the Naval forces reliable cost estimating tools.

- ***Platform Protection.*** Naval platforms—ships, aircraft, and other vehicles—face worldwide proliferation of low cost, highly effective anti-platform weapons. We can expect to encounter these in large numbers and great diversity in our future operations, and so our platforms need

effective organic means of protection: weapons, sensors, countermeasures, stealth, and damage control.

- ***Missile Defense.*** Not only Naval forces, but any unit, group, asset, population—*anyone*—can expect to come under the threat of widely proliferating ballistic and cruise missiles. Naval forces can provide a missile defense by developing 360 degree protection, overland surveillance and fire control capability, a single integrated air picture, composite combat identification, distributed weapons control, and overland intercept capability.

- ***Expeditionary Logistics.*** Navy and Marine Corps doctrine emphasizes expeditionary warfare, and expeditionary warfare requires expeditionary logistics. We need to develop the capability of deploying, reconstituting, and supplying our forces from the sea, without building up a large logistical infrastructure ashore.

- ***Capable Manpower.*** Sailors and Marines must be fully prepared to fight and win in an information rich, distributed battlespace. We can give them the edge with affordable human-centered hardware and systems developed out of a thorough knowledge of human capabilities, limitations, and needs—including the capabilities, limitations and needs of each individual Sailor and Marine.

- ***Warfighter Protection.*** When we send Sailors and Marines into harm's way, we owe them the best possible combat casualty prevention, care, and management. We also owe it to them to keep them as healthy and fit as possible. And all of this is Warfighter Protection.

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